CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.2558412

Available online at: http://www.iajps.com ***Research Article***

STUDY TO KNOW TREATMENT RELATED TO ANEMIA IN CHRONIC HEPATITIS C PATIENTS TAKING COMBINATION THERAPY OF RIBAVIRIN AND PEGYLATED INTERFERON ALPHA

[1]Dr. Muhammad Ali, [2]Dr. Muhammad Ajmal, [3]Dr Orooba Zia
[1,2,3]Rawalpindi Medical University, Rawalpindi.

Abstract:
Objective: *To evaluate the prevalence of treatment-related anemia in chronic hepatitis C patients receiving ribavirin and pegylated interferon alpha in combination therapy.*
Study design: *A descriptive cross-sectional survey.*
Place and Duration: *In the Medical Unit II of Benazir Bhutto Hospital Rawalpindi for One year duration from September 2017 to September 2018.*
Methods: *A total of 50 subjects with hepatitis C in chronic stage were nominated for interferon-alpha and ribavirin at standard doses for 24 weeks.*
Results: *During the study period, the majority of the patients were between 41 and 50 years of age, ie 32% (n = 16), and the mean and standard deviation were 38.33 + 4.60, and 38% (n =19) were male and 62% (n = 31) were female. The treatment given for 2 weeks, the incidence of treatment-induced anemia was 24% (n = 12) and they were anemic.*
Conclusion: *The frequency of treatment-related anemia in chronic hepatitis C patients treated with ribavirin and pegylated interferon alpha in the 2nd week of treatment suggests significant anemia.*
Key words: *Anemia, ribavirin and pegylated interferon alpha combination therapy, chronic hepatitis C.*

Corresponding author:
Dr. Muhammad Ali,
Rawalpindi Medical University, Rawalpindi.

QR code

Please cite this article in press Muhammad Ali et al., ***Study To Know Treatment Related To Anemia In Chronic Hepatitis C Patients Taking Combination Therapy Of Ribavirin And Pegylated Interferon Alpha.,*** *Indo Am. J. P. Sci, 2019; 06(02).*

INTRODUCTION:

3 -10% of the Pakistan population have hepatitis C virus in chronic stage, and the genotype 3 is the most common subtype in our populations. For hepatitis C, the treatment recommended is pegylated interferon alpha and Ribavirin for 24 or 48 weeks. Approximately 65% of the patients developed influenza-like symptoms, sleep disorders, loss of appetite, depression, continuous fever, anemia, thrombocytopenia, neutropenia and rash. Ribavirin also causes dose-dependent reversible hemolytic anemia, which results in an average decrease of 3.7 g / dl of hemoglobin (Hb) within 4 weeks with the myelosuppressive effects of interferon. This anemia <10 / dl occurred in 20.5% of patients at 14 days after treatment begin. Before the start of treatment, Hb (hemoglobin) levels were higher than 12 g / dl, and who had to stop treatment due to severe anemia were taking Ribavirin in 14%. The patients aged 60 years and older discontinuation was more common. In univariate analysis, ribavirin dose reduction significantly affected ribavirin-induced hemolytic anemia. In patients with HCC managed with IFN alpha, interferon alpha (IFN) and Ribavirin (IFN + RIB) anemia were observed in 37.5% and 56.6%, respectively. In multivariate analysis, patients with hemoglobin and renal insufficiency before treatment at an age of 14 g / dl and at the age of 55 years may have increased the risk of ribavirin-induced anemia. In a standard interferon regimen and high doses of ribavirin (1000-1200 mg / d), 54% of patients had a reduction of more than 3 g / dl in hemoglobin at some point during 48 weeks of treatment. The mean reduction in HB is two to three g / dl in the first 4 weeks of treatment, for many patients this response is influenced by the co-suppression of the interferon-associated bone marrow. 8-9% of patients approximately treated with combined therapy had a decrease in hemoglobin levels to less than 10 g / dL, 13-23% of patients had interferon alpha/ or ribavirin alpha. According to the study conducted by Natinall, Hemoglobin (Hb) had a mean decrease of 0.87 d / dl at 3 months and antiviral therapy at 2 g / dl for 6 months. 10% of the patients developed anemia, 6 months after the antiviral treatment, 2 g / dl and 10% anemia. Patients developed anemia after 6 months of antiviral treatment. In Pakistan, anemia-induced therapy (Hb months11g / dl) was found in 7% of cases in three months. Hemoglobin may increase the risk of treatment-related anemia in patients with previous 12 g / dl and those aged 55 and over and with renal impairment. According to available evidence, treatment-related anemia is also prominent and frequent during treatment. In this study, we plan to find the frequency of anemia in 2 weeks. If this frequency seems to be higher, we may recommend early management steps to be taken.

MATERIALS AND METHODS:

This descriptive cross-sectional survey was held in the Medical Unit II of Benazir Bhutto Hospital Rawalpindi for One year duration from September 2017 to September 2018.

Fifty (50) patients were selected for the study. The risk of treatment and aim were explained to the patients, and informed consent in written state was taken. If the patient meets the inclusion criteria when taken in Medicine OPD, the treatment was initiated (pegylated interferon alpha 2b plus 1.5 mg / kg once a week) and hemoglobin levels were evaluated at the end of the first week and finally at the second week. If anemia is detected at any time during the treatment, compassionate and appropriate additional actions will be taken. The patients were treated according to the standard protocol. These patients were observed very closely with frequent follow-ups in OPD. Hemoglobin was done in the hospital lab. All this information was collected with proforma. Using version 14.0 of SPSS data was analyzed. Quantitative variables of the study were measured as mean ± standard deviation and age, qualitative variables were measured as sex and frequency of anemia caused by treatment.

RESULTS:

In order to evaluate the prevalence of treatment-related anemia in patients with hepatitis C in chronic stage who received ribavirin and pegylated interferon alpha combination therapy, a total of 50 patients were selected for the analysis. The age distribution of the patients was between 20-30 years of age and 24% (n = 12) of the patients, 30% (n = 15) between 31-40 years of age, 32% (n = 16). While between 41 and 50 years of age, only 14% (n = 7), between 51 and 55 years of age, had a mean and standard deviation of 38.33 ± 4.60 (Table 1).

Table 1 : Age Distribution of the Subjects (n=50)

Age (in years)	=n	%age
20-30	12	24
31-40	15	30
41-50	16	32
51-55	7	14
Total	50	100
Mean and S.D.	38.33±4.60	

Table 2 shows that 38% (n = 19) of the male patients and 62% (n = 31) were female.

Table 2: Gender of the subjects (n=50)

Gender	=n	%age
Male	19	38
Female	31	62
Total	50	100

In the second week of treatment, the incidence of anemia caused by treatment was 3% (n = 12), while it was calculated in Table 3, 76% (n = 38) was not anemic (Table 3).

Table 3: Frequency of therapy induced anemia at 2nd week of therapy (n=50)

Anemia	=n	%age
Yes	12	24
No	38	76
Total	50	100

DISCUSSION:

Currently, 130-170 million people worldwide are infected with hepatitis C virus (HCV). More than 70% of HCV infections become chronic and if untreated, cirrhosis and liver transplantation require hepatocellular carcinoma. The ability to improve treatment response rates makes ribavirin necessary for the treatment of HCV infection. To maximize the benefit of ribavirin patients, the limiting side effect of treatment with antiviral activity requires the right balance of hemolytic anemia. In Pakistan, treatment-related anemia (Hb an11 g / dl) was found in 7% of cases in three months. It was aimed to determine the frequency of anemia in the second week of treatment. If this frequency seems to be greater, it is rationalized that we can recommend early management measures to control. In our study, in contrast to a study by Nomura H, we found that 24% of the study colleagues found 2% reduction in 24% of patients with anemia to identify factors contributing to anemia caused by cancer patients. / dL hemoglobin The concentrations in patients with anemia were observed at week 2 after the start of treatment. It was observed that hemoglobin concentration was significantly lower in patients with> 2 or 2 g / dl decrease at 2 weeks (P <0.01). Oze T and its staff conducted a study in Japan to study the factors associated with the progression of ribavirin-induced hemolytic anemia in patients with chronic hepatitis C treated with combination therapy with interferon and ribavirin,

and Hb was greater than 12 g / dl prior to treatment, 68 patients (14% had to stop treatment with ribavirin due to severe anemia. Patients with a "2 to 2" positive group (Hb, decreased to over 2 g / dl) with the lowest CL / F (apparent clearance) were more frequent than patients under 60 years of age due to severe anemia Interruption, 60 years and older (%) 21 to 9%, P <0.001). Among patients aged 60 years and older, only the "2 x 2" standard was significantly associated with discontinuation of ribavirin due to severe anemia in a multivariate analysis (rate ratio, 4.18, P <0.001). The results of this study are also consistent with the previous study because the range of our subjects was only up to 55 years, but on the other hand, a limitation was observed due to the study. The reason why anemia is not classified by age in our study is due to a 30.4% of patients in the age group that is > 40 years of age and due to a weak socioeconomic class in our country. However, the results of this study and other studies suggest that anemia in 2 weeks may be the cause of discontinuation of the treatment and other important parameters suggest that treatment of the elderly may cause anemia in patients with hepatitis, combined therapy field Chronic C Alpha pegylated interferon and ribavirin. In addition, it may help to take early management measures to control anemia (after the second week) caused by early-identified treatment.

CONCLUSION:

The frequency of treatment-related anemia in patients with chronic hepatitis C treated with pegylated interferon alpha and ribavirin or in combination in the second week of treatment reveals marked anemia.

REFERENCES:

1. Nakashima, Megumi, Hidenori Toyoda, Toshifumi Tada, Kazuyuki Mizuno, Etsuko Iio, Yasuhito Tanaka, Tadashi Sugiyama, Tomoaki Yoshimura, and Takashi Kumada. "Influence of Renal Dysfunction on Dose Reduction and Virological Efficacy of Regimens Combining Ribavirin and All–Oral Direct Acting Antivirals in Patients with Chronic Hepatitis C Virus Infection." *Hepatology Research* (2019).
2. Hirosawa, Takuya, Naoki Morimoto, Kouichi Miura, Toshiyuki Tahara, Toshimitsu Murohisa, Yukishige Okamura, Takashi Sato et al. "No Regional Disparities in Sofosbuvir Plus Ribavirin Therapy for HCV Genotype 2 Infection in Tochigi Prefecture and its Vicinity." *Internal Medicine* (2019): 1194-18.
3. Sghaier, Ikram, Etienne Brochot, Besma Y. Loueslati, and Wassim Y. Almawi. "Hepatitis C virus protein interaction network for HCV clearance and association of DAA to HCC occurrence via data mining approach: A systematic review and critical analysis." *Reviews in medical virology* (2019): e2033.
4. Elhelbawy, Mostafa, Wael Abdel-Razek, Ayman Alsebaey, Mohamed Hashim, Hassan Elshenawy, and Imam Waked. "Insulin resistance does not impair response of chronic hepatitis C virus to direct-acting antivirals, and improves with the treatment." *European journal of gastroenterology & hepatology* 31, no. 1 (2019): 16-23.
5. Pan, Calvin Q., Benjamin C. Tiongson, Ke-Qin Hu, Steven-Huy B. Han, Myron Tong, Danny Chu, James Park et al. "Real-World Study on Sofosbuvir-based Therapies in Asian Americans With Chronic Hepatitis C." *Journal of clinical gastroenterology* 53, no. 2 (2019): 147-154.
6. Narayanan, Shivakumar, Ameer Abutaleb, Kenneth E. Sherman, and Shyam Kottilil. "Clinical features and determinants of chronicity in hepatitis e virus infection." *Journal of viral hepatitis* (2019).
7. Zając, Marianna, Izabela Muszalska, Agnieszka Sobczak, Adrianna Dadej, Szymon Tomczak, and Anna Jelińska. "Hepatitis C–New drugs and treatment prospects." *European Journal of Medicinal Chemistry* (2019). Zając, M., Muszalska, I., Sobczak, A., Dadej, A., Tomczak, S., & Jelińska, A. (2019). Hepatitis C–New drugs and treatment prospects. *European Journal of Medicinal Chemistry*.
8. VARÓN, ADRIANA, LUISA SANTOS, MÓNICA TAPIAS, CLARA CÁEZ, JUAN IGNACIO MARÍN, ÓSCAR SANTOS, MARTÍN GARZÓN et al. "COLOMBIAN EXPERIENCE IN THE TREATMENT OF HEPATITIS C WITH DIRECT-ACTING ANTIVIRAL AGENTS." *MEDICINA (Buenos Aires)* 79, no. 1 (2019): 00-00.
9. Kahyesh-Esfandiary, Roya, Zohreh-Azita Sadigh, Maryam Esghaei, Mohammad-Navid Bastani, Tahereh Donyavi, Alireza Najafi, Atousa Fakhim, and Farah Bokharaei-Salim. "Detection of HCV genome in peripheral blood mononuclear cells of Iranian seropositive and HCV RNA negative in plasma of patients with beta-thalassemia major: Occult HCV infection." *Journal of medical virology* 91, no. 1 (2019): 107-114.
10. Buonomo, Antonio Riccardo, Riccardo Scotto, Emanuela Zappulo, Mariagiovanna Nerilli, Biagio Pinchera, Giuseppe Perruolo, Pietro Formisano, Salvatore Nappa, and Ivan Gentile. "Severe Vitamin D Deficiency Increases Mortality Among Patients With Liver Cirrhosis Regardless of the Presence of HCC." *In Vivo* 33,

no. 1 (2019): 177-182.

11. Kaushik, Shivani B., and Mark G. Lebwohl. "Psoriasis: which therapy for which patient: focus on special populations and chronic infections." *Journal of the American Academy of Dermatology* 80, no. 1 (2019): 43-53. Kaushik, S. B., & Lebwohl, M. G. (2019). Psoriasis: which therapy for which patient: focus on special populations and chronic infections. *Journal of the American Academy of Dermatology*, *80*(1), 43-53.
12. Mengshetti, Seema, Longhu Zhou, Ozkan Sari, Coralie De Schutter, Hongwang Zhang, Jong Hyun Cho, Sijia Tao et al. "Discovery of a Series of 2'-α-Fluoro, 2'-β-Bromo-Ribonucleosides and their Phosphoramidate Prodrugs as Potent Pan-Genotypic Inhibitors of Hepatitis C Virus." *Journal of Medicinal Chemistry* (2019).
13. Montasser, Mohamed F., Samy Zaky, Mohamed Salaheldin, Dina Johar, Abdelrahman Ibrahim Abushouk, Fathiya El-Raey, Muneer Al-Husseini, and Elsayed G. Mohammed. "Fib-4 Predicts Early Hematological Adverse Events Induced by Interferon-Based Triple Therapy in Chronic Hepatitis C Virus Patients." *Journal of Interferon & Cytokine Research*.
14. Desai, Manoj C., Randall L. Halcomb, Paul Hrvatin, Hon Chung Hui, Ryan McFadden, Paul A. Roethle, and Hong Yang. "Modulators of toll-like receptors." U.S. Patent Application 10/172,860, filed January 8, 2019.